Type (in my collection) collected by W. S. Genung near Bay St. George, Newfoundland, in July. Additional specimens in my collection were collected by Geo. P. Engelhart at the same place, also in July. Typical *C. longilabris* was found by Mr. Genung at Bay of Islands, but only the green form at Bay St. George. Mr. Engelhardt tells me that both forms may be found at Channel Village.

The Cicindelidæ of Newfoundland as far as known include the above described forms of *longilabris* and *C. tranquebarica* var. *horiconensis,* Stephensville, *C. limbalis,* Bay of Islands, *C. duodecimguttata,* Little Codroy, Nicholsville, Stephensville, *C. sexguttata* (Leconte, Trans. Am. Phil. Soc., XI, 1860). The exact locality for the last is unknown; all the others come from the west coast where Fernald (Rhodora, XIII, 1911, p. 117) found Carolinian plants on the sandy beaches and dunes. As far as we now know the localities named above mark the most northern limit of the family on our Atlantic coast.

MISSISSIPPI CICADAS, WITH A KEY TO THE SPECIES OF THE SOUTHEASTERN UNITED STATES.

BY WM. T. DAVIS,

NEW BRIGHTON, STATEN ISLAND, N. Y.

For several years Professor R. W. Harned has kindly sent to me for identification the cicadas collected by the students of the Mississippi Agricultural and Mechanical College. It has been a pleasure to go over the specimens, and now that records for eighteen species have accumulated, including a new one, it seems desirable to make a list of those known to occur in the state. Mississippi is rich in cicadas, and as far as the present records show, has even more species than Florida. This is easily explained, for some of the western species reach as far eastward as the valley of the Mississippi River. The discovery of the green-colored *Okanagana,* described in this paper, from the delta section of the state, has been a great surprise. It suggests that other unknown forms may still exist and emerge from time to time from their unseen feeding places beneath the sur-

face of the ground. As far as is known this is the first species of *Okanagana* found in the Gulf States east of Texas.

The key to genera and species not only covers the cicadas from Mississippi, but the southeastern United States in general. The only species of the region not occurring in Mississippi are *Tibicen canicularis* (Harris), found at least as far south as Cape May County, New Jersey, and *Tibicen biconica* (Walker) of Florida and the West Indies. These two species are figured as a further aid to their identification.

The *Tettigonia varicgata* Fabricius, from "Carolina," has not been identified, owing to faulty description. It may be one of several of our well-known species. Francis Walker described *Cicada resonans, Cicada viridifascia, Fidicina figurata* and *Fidicina olympusa* without locality, but the species have been credited to North America by Distant in Genera Insectorum, who placed them in two instances as synonyms of *Tibicen auletes*. All four names have here been applied to species native to Mississippi and nearby states. It is hoped that this has been done correctly, but whether correctly or not it has seemed preferable to use the names until the matter can be settled, as it will be in time by the growth of more extensive collections, and perhaps by the examination of the specimens described by Walker, if they at this time can surely be identified as his material.

Of the twenty species mentioned in the present paper, sixteen belong to the genus *Tibicen* and are so listed by Mr. Van Duzee in his Catalogue of the Hemiptera. The remaining four genera contain but one species each.

Thanks are due to Dr. Wm. H. Wiegmann, of the New York Entomological Society, who has kindly subjected the keys to the test of determining specimens, and it is hoped that they will be found of service.

Key to Genera of Cicadas of the Southeastern United States.

Tympanal coverings concealing tympanal orifices.
Head large and broad, body walls of abdomen thickened; opercula large ..... **Tibicen** Latreille.
Head small, abdomen translucent; opercula very small. . **Cicada** Linnæus.
Tympanal coverings absent.
Cells of median area of fore wings longer than marginal cells.
Head (including eyes, which are red in life) nearly as broad as base

of mesonotum. Opercula rather large, nearly touching on inner margin ..... **Tibicina** Kolenati.

Head, including eyes, much narrower than base of mesonotum. Opercula small with extremities far apart..... **Okanagana** Distant.

Cells of median area of fore wings of about the same length or shorter than the marginal cells.

Very small species ..... **Melampsalta** Kolenati.

KEY TO SPECIES OF THE GENUS TIBICEN FOUND IN THE SOUTHEASTERN UNITED STATES.

A. Large, heavy bodied species; head broad, uncus simple, and first cross vein in the fore wings starting from radius 3 far back, or about one third distant from base of first marginal cell.

B. Uncus longer than broad. Black species with green or greenish markings and black area on the central part of the abdomen beneath, except in *sayi,* and new variety of *davisi.*

C. Hind margin of pronotum or collar, green or greenish.

A narrow irregular area of black on the under side of the abdomen; opercula short and broad, and usually in the males an attenuated, pruinose stripe each side on the dorsum of segment three ..... **pruinosa** (Say).

Dorsum of abdomen with the hind margin of the segments more or less brown and generally but a trace of pruinose stripe each side on segment three.

pruinosa var. **winnemanna** (Davis).

Dorsum of abdomen shining black with a broad pruinose mark each side on segment three; blackened area on under side of abdomen more in the nature of an even stripe.

pruinosa var. **latifasciata** (Davis.)

A longitudinal band of black on the under side of the abdomen, the opercula more lobate, and the margin of the front wings suddenly bent near the middle.

linnei (Smith & Grossbeck).

A definite longitudinal band of black on the under side of the abdomen; head with the front rather prominent. Not a large species ..... **canicularis** (Harris).

An irregular band of black on the under side of the abdomen, head rounded in front; a rather small species.

davisi (Smith & Grossbeck).

Abdomen greenish centrally on under side, blackened area wanting, marginal cells of fore wings clouded.

davisi var. **harnedi** new variety.

CC. Hind margin of pronotum or collar black or nearly so (except in *sayi* var. *australis*).

D. Central area of the abdomen beneath black.

Opercula long and with the legs usually somewhat chestnut colored; the uncus when seen in profile forked, resembling the open mouth of a snake.

similaris (Smith & Grossbeck).

Opercula much shorter, more rounded, and the black area on the under side of the abdomen in the nature of an even stripe. Uncus not forked.

lyricen (De Geer).

Blacker than typical *lyricen*, lacking the considerable amount of fulvous markings on the pronotum and mesonotum. A fulvous somewhat anchor-shaped mark centrally on the pronotum.

lyricen var. **engelhardti** (Davis).

DD. Central area of the abdomen not black beneath, often pruinose, as well as the long opercula.

Collar black, often with a greenish spot each side near the outer angles.....**sayi** (Smith & Grossbeck).

Collar all green or nearly so, as well as the pronotum and mesonotum .....**sayi** var. **australis** (Davis).

BB. Uncus broad at the base, triangular in shape and generally about as broad as long. Opercula broad and rounded at the extremities; no definite black area on the central part of the abdomen beneath, usually unicolorus.

E. Wings long and narrow, collar 2 mm. or less in breadth at central portions; dorsum of abdomen black or nearly so.

Basal cell of fore wings rusty in color, anal cells (membranes) of both pair of wings gray; usually expands 110 mm. or more .....**resonans** (Walker).

Basal cell of fore wings often black or nearly so, anal cells of both pair of wings yellowish. Expands about 100 mm. .....**figurata** (Walker).

EE. Wings broad, hind margin of the pronotum or collar green or greenish and more than 2 mm. broad.

F. Anal cells or membranes at base of fore and hind wings gray.

Dorsal segments of the abdomen not margined with brown; in fresh specimens the basal segments pruinose, also the terminal segments, leaving the four middle segments black. A large species expanding over 110 mm. .....**auletes** (Germar).

FF. Anal cells or membranes at base of fore and hind wings light orange, two prominent marks on the mesonotum resembling the Hebrew letter resh inverted.

Fore wings with the first and second cross veins clouded, and the dorsum of the abdomen brownish or brownish black .....**resh** (Haldeman).

Fore wings with the first and second cross veins but

faintly or not at all clouded and the abdominal segments margined posteriorly with brown. In fresh specimens there is usually a median row of white spots on the dorsum of the abdomen..**marginalis** (Walker).

AA. Small species; uncus wish-bone shaped, and first cross vein in the fore wings starting from about the middle of the first marginal cell.

G. First and second cross veins of fore wings clouded.

Expanse of wings about 90 mm. .....**biconica** (Walker).

Expanse of wings about 60 mm. .....**olympusa** (Walker).

GG. First and second cross veins of fore wings not clouded, wings clear throughout and expanding about 70 mm.

Head rather large, front rounded, collar greenish or yellowish and contrasted in color rather sharply with the brown and black of pronotum and mesonotum .....**viridifascia** (Walker).

Head proportionately smaller than in the last; front more protruding; collar not so contrastingly colored and fore wings narrower .....**vitripennis** (Say).

Tibicen pruinosa (Say).

Figured in JOURNAL N. Y. ENTO. SOC., March, 1915, Pl. 2, fig. 2. This is one of the most common species in Mississippi, and forty-two specimens have been examined, twenty-two of them from Agricultural College, Oktibbeha County. The other localities are Iuka, Coldwater, Okolona, Rosebloom, Strongs, Greenville, Starkville, Jackson, Forkville and Norris. The dates of capture range from June to October. So far none have been received from the southern part of the state.

The known distribution of this species is the general region of the valley of the Mississippi as far north as eastern Nebraska, and as far east as Indiana. In the more elevated regions of Virginia, North Carolina and southwestward, the variety *winnemanna* Davis, with the posterior margins of the segments generally brownish, is to be found, while the variety *latifasciata* Davis, with a broad white, pruinose mark on the third abdominal segment, occurs along the Atlantic coast, close to the ocean. These two varieties may possibly be found in Mississippi, the first in the higher parts of the state, and the second along the coast.

The song of *pruinosa* is quite unlike that of any of the other large native cicadas, and may be rendered as *z-zape, z-zape, z-zape.* The insect often remains quiet all day, singing from about 3 or 4 P. M. until dark.

Tibicen linnei (Smith & Grossbeck). Pl. VII, fig. 1.

Ratliff, summer, 1915, female (A. McIntosh). There is considerable uncertainty about this specimen, for the reason that locality labels may have become mixed, but as the species occurs in Tennessee there is no reason why it should not occur in Mississippi as well.

The female of this species often closely resembles that of *T. pruinosa*, but in *linnei* the fore wings are abruptly bent near the middle, whereas in *pruinosa* the curve is more regular. The song is very different from that of *pruinosa* and is a continuous *z-ing*, but generally of short duration.

Tibicen davisi (Smith & Grossbeck). Pl. VII, fig. 3.

Longview, September, 1916, female (J. H. Oswalt); Vimville, August 2, 1914, female (E. R. Raney); Columbia, July, female (B. Morris); Hattiesburg, August, 1916, male (W. H. Cook); Caesar, summer, 1916, male and female (R. H. Stewart); Anner, July, 1915, male, and summer, 1916, male (H. P. Smith); Long Beach, July 10, 1916, male (W. J. Frederich).

In addition to the above there is a female which represents a variety of *davisi*. We also have two others from Arkansas. This variety may be described as follows:

Tibicen davisi var. **harnedi** new variety, Pl. VII, fig. 4.

Type male, Helena, Arkansas, June, 1916 (K. D. Jacob). Davis collection.

Allotype female, Rodney, Jefferson Co., Miss., August, 1917 (O. A. Hammett). Collection, Miss. Agri. and Mechanical College.

More robust than typical *davisi*, with broader wings, the first seven marginal cells of the fore wings being clouded much as in *Tibicen superba* Fitch. The dorsal markings are quite green in color, the central, green, wedge-shaped mark on the pronotum is not separated from the hind margin, but is confluent with it; the collar is bright green. The dorsal surface is less rusty in appearance than in typical *davisi*. Beneath the abdomen is greenish, without the "narrow black portion in the center," as in typical *davisi*.

In addition to the type and allotype we have a female from Hot Springs, Arkansas, September, 1917 (M. R. Harrington).

We figure a typical *T. davisi* from North Carolina, and the type of var. *harnedi*.

MEASUREMENTS IN MILLIMETERS.

	Male Type.	Female Allotype.
Length of body	33	30
Width of head across eyes	13.5	14
Expanse of fore wings	81	87
Greatest width of fore wing	13	13
Greatest width of operculum	6	

Tibicen davisi occurs throughout the southeastern states as far north as New Jersey. Its song is a continuous *z-ing* of short duration, and is more sharp in tone, though not as loud as that produced by the larger, related black species.

Tibicen similaris (Smith & Grossbeck). Pl. VIII, fig. 2.

Agricultural College, October 11, 1914, male, October 14, 1914, female, and "summer," male. Anner, summer, 1916, male (H. P. Smith); Kiln, summer, 1916, male (H. W. Lee).

This species occurs from Mississippi to Virginia, and is very common in parts of Florida, where it may be heard singing in the small turkey oaks and elsewhere. In fresh specimens there is a pruinose lateral mark along the base of the abdomen often observable when the insect is in flight.

Tibicen lyricen (De Geer). Pl. VIII, fig. 1.

Red Bank, August, 1917, male (J. G. Kizer); Logtown, summer, 1917, female (A. Lutken); Rienzi, August 23, 1915, male (H. Y. Jumper).

This is a widely distributed insect in the eastern half of the United States, being found from Texas to Florida, and Kansas to Massachusetts. In the higher parts of Virginia, North Carolina, Tennessee and Georgia, the variety *engelhardti* (Davis) is the prevailing form of the species. This is characterized by having the pronotum and mesonotum nearly all black, except for the somewhat anchor-shaped, tawny spot on the former. It will perhaps be found in the uplands of Mississippi.

The song of *lyricen* is a rather monotonous *zing*.

Tibicen sayi (Smith & Grossbeck).

Figured in Howard's Insect Book under the name of *tibicen*, Pl. 27, fig. 20.

This is probably the most common of the large cicadas found in Mississippi, and has been reported from all parts of the state. Eighty-one specimens have been examined, and the dates of capture are from June to September, but it will also be found in October. The localities from which these speimens came arranged from north to south are: Nesbitt, Kossuth, Corinth, Coldwater, Blue Mountain, Sledge, Ratliff, Charleston, Houlka, Pace, Buena Vista, Cleveland, O'Reilly, Pheba, Greenville, Leland, Winona, Vaiden, Long View, Sturgis, Agricultural College, Columbus, McCool, Goodman, DeKalb, Ferns Springs, Flora, Jackson, Forkville, Lake, Vimville, Montrose, Fayette, Ellisville, Columbia, Hattiesburg, McComb, Picayune, Anner and Kiln.

This species is distributed over most of the eastern half of the United States from eastern Texas and Kansas northward to Michigan and New York. We have collected it as far south as the Caloosahatchee River, Florida. The variety *australis* Davis, which is much greener colored, occurs not uncommonly in parts of Florida and Georgia, and should be found in Mississippi.

The song of this species is more impetuous than that of most of the related species, rising to a rapid *zing* and then gradually subsiding.

Tibicen resonans (Walker).

Figured in Journal N. Y. Ento. Soc., March, 1915, Pl. 1, fig. 2.

Agricultural College, July 11, 1914, male (G. W. Bacot); October 14, 1914, male (W. E. Vernon); female of no date (J. C. Holton); Ora, July 20, 1914, male (F. Rogers); Laurel, July 17, 1916, female, and August 12, 1916, male (M. G. Dyess); Ellisville, August, 1916, male (O. W. Collins); Clara, July 21, 1916, female (F. B. Pittman); Hattiesburg, August, 1916, female (W. H. Cook) and August 13, 1916, female (T. R. Hearon); Columbia, July, 1915, female (B. Morris); Wiggins, August 16, 1916, male (H. T. Powers). Caesar, summer, 1916, male and three females (R. H. Stewart); Anner, July, 1915, female (H. P. Smith), and male without date (R. H. Stewart); Kiln, summer, 1916, two males (H. W. Lee), and July, 1915, female (A. B. Curet); Ocean Springs, September 13, 1915 (C. E. Wilson).

So far no specimens have been reported from further north than Agricultural College, but as the insect is found in the sand ridges in

North Carolina, there is no reason why it should not occur quite far north in Mississippi, provided soil conditions are right.

Tibicen figurata (Walker).

Figured in JOURNAL N. Y. ENTO. SOC., March, 1916, Pl. 3, fig. 1.

Quincy, August 8, 1915, female (K. L. Cockerham); Montgomery Co., summer, female, and July 29, 1916, female (L. J. Liston); Longview, August 30, 1916, female (F. Oswalt); Agricultural College, August, 1916, female (N. C. Oakes), and October 19, 1916, female (C. C. Greer); West, July, 1915, female (F. L. Craft); Meridian, September 10, 1915, female (Rehn & Hebard); Gloster, May 17, 1916 (C. F. Yllander); Anner, summer, 1916, female on pine (H. P. Smith).

So far this species has been examined only from Arkansas, Louisiana, Mississippi, Alabama and Florida.

Tibicen auletes (Germar).

Figured in JOURNAL N. Y. ENTO. SOC., March, 1915, Pl. 1, fig. 1; Howard's Insect Book, under name of *marginata*, Pl. 28, fig. 19.

This is an abundant species in Mississippi and forty-seven specimens have been examined, the dates of capture ranging from June to November. The June record is for a female collected at Lake in 1916, by W. C. Parker, and the November 4, 1916, record is a female from Agricultural College, collected by J. E. Vaughn. The other localities are Red Banks, Iuka, Coldwater, Okolona, Webb, Egypt, Walthall, Lexington, Flora, Jackson, Meridian, Stonewall, Ollie, Mount Olive, Ellisville, Laurel, Columbia, Hattiesburg, Moselle, Ovett, Picayune, Anner, Gulfport and Ocean Springs.

This species is widely distributed, being found from eastern Kansas and Nebraska to Michigan and Massachusetts, and southward along the coast to Florida.

Its song is monotonous in tone and not loud, considering the size of the insect. It often commences to sing late in the afternoon and continues off and on until dark.

Tibicen resh (Haldeman).

Figured in JOURNAL N. Y. ENTO. SOC., March, 1915, Pl. 1, fig. 3.

Greenville, August 17, 1916, male (W. M. Crumpton); Fayette, July 25, 1917 (J. T. Shelton).

Specimens from Kansas, Missouri, Oklahoma, Arkansas, Alabama, Louisiana, and a great many from Texas, have been examined in addition to those mentioned above. The type locality given by Haldeman is "the Great Salt Lake Valley," but no cicada filling the description has been seen by the writer from Utah. In the preface to his article containing the original description, Haldeman states that owing to the small number of insects collected by the Stansbury expedition, specimens from Texas have been included in his paper, so there may be an error in locality. If in time a species from Utah is found that more closely fills the description of *resh,* we still have the name of *robertsonii* Fitch for the Mississippi insect.

Tibicen marginalis (Walker).

Cicada marginata Say.

Figured in JOURNAL N. Y. ENTO. SOC., March, 1915, Pl. 2, fig. 1, and December, 1915, Pl. 18, fig. 2.

Nesbitt, August, 1915, male (L. E. Lea), Flora, August, 1916, male (H. B. Greaves); Hattiesburg, September 11, 1915, male and female on willow (Rehn and Hebard); two males with no labels.

This species seems to be more particularly confined to the central part of the United States, reaching northward to Kansas and Iowa, and eastward to western Ohio, Kentucky and Tennessee.

Tibicen olympusa (Walker).

Cicada sordidata Uhler.

Figured in JOURNAL N. Y. ENTO. SOC., March, 1916, Pl. 5, fig. 5.

Long Beach, July, 1916, two males (W. J. Frederich). While this is so far the most western record, the insect will probably be found in Louisiana. It is common in Florida, especially near the coast, occurs in southern Georgia, and Mr. H. P. Loding has sent me four males from Mobile, Alabama, collected July 2, 1916.

In this, as well as in probably all the remaining species of *Tibicen* here mentioned, the song may last for a long time. In the present species it much resembles the stridulation of some of the *Neoconocephalus* grasshoppers or Tettigoniidæ.

Tibicen delicata (Osborn), found in Louisiana and Texas, may poss bly be found also in Mississippi. It is figured in the JOURNAL N. Y. ENTO. SOC., March, 1916, Pl. 6, fig. 2.

Tibicen viridifascia (Walker).

Cicada reperta Uhler.

Figured in JOURNAL N. Y. ENTO. SOC., March, 1916, Pl. 6, fig. 1.

Long Beach, July, 1916, female (W. J. Frederich); Ship Island, August 24, 1915, female (Rehn and Hebard).

The specimens from Mississippi so far examined belong to the variety *bequaerti* Davis, though not typical, described and figured in the JOURNAL N. Y. ENTO. SOC., December, 1917.

Tibicen viridifascia occurs from Virginia southward along the coast, and is quite common in eastern Florida. The song is continuous and may be rendered *zeckie, zeckie, zeckie.*

Tibicen vitripennis (Say).

Cicada erratica Osborn.

Figured in JOURNAL N. Y. ENTO. SOC., March, 1916, Pl. 6, figs. 3 and 4.

Friar's Point, July 2, 1910, male (E. C. Crockett); Saltillo, summer, female, collected in the middle of a large swampy woods (T. P. Cassidy); Rosebloom, August, 1915, female (Rex Buchanan); Greenville, June, 1916, male and female (W. F. Wheatley); July 12, 1916, female (G. S. Vincient), and August, 1916, female (W. H. McClain); Lexington, September 1, 1916, female (Wm. W. Broome); Vicksburg, July, 1915, female (E. L. Brien), and July, 1916, two females (A. E. Bonnelli); Palmyra, July, 1912, five males and five females (R. N. Lobdell). In addition to the above mentioned Mr. Lobdell has personally sent to the writer three males and two females, also some pupæ and pupæ cases "collected during July at Palmyra Island, Mississippi," which he states is subjected to periods of inundation, so the young insects are evidently able to live in very wet soil.

Prof. R. W. Harned has contributed the following note: "In regard to the distribution of *Tibicen vitripennis* I am inclined to think that this insect will only be found on low ground or in swampy places. This insect seems to be fairly prevalent in what is known as the delta section of Mississippi or the Yazoo-Mississippi Delta. This is the alluvial western part of the state. This species is also fairly abundant in similar soils in Arkansas and Louisiana. The first time that I ever noticed this species was late in June, 1912. I found them quite numerous in fields at Palmyra Island, south of Vicksburg. I

was surprised to find them coming out of the ground several hundred yards away from any perennial plants. They were also emerging from soil that had been under water a few weeks before. The species is quite common in the cotton fields of the delta."

The distribution seems to be confined to the central United States. Specimens have been examined from Mississippi, Louisiana, Arkansas, Oklahoma, Kansas, Nebraska and Indiana.

Cicada hieroglyphica Say.

Figured in Journal N. Y. Ento. Soc., March, 1916, Pl. 6, fig. 5, and Howard's Insect Book, Pl. 28, fig. 11.

Corinth, summer, 1917, male (R. M. Lancaster). Osyka, June 12, 1914, male (E. A. Morgan); Pascagoula, June 10, 1915, female (R. O. Vaughn).

Occurs from Riverhead, Long Island, N. Y., to eastern Kansas and southward. In peninsular Florida the variety *johannis* Walker replaces the typical form. The black marks on the head, pronotum and mesonotum are more in the form of spots than of continuous lines as in typical *hieroglyphica*.

The song does not continue long, but sometimes, as in the Pine Barrens of New Jersey, the insects appear in numbers, when their united effort produces a considerable noise.

Tibicina septendecim (Linnæus).

Figured in Howard's Insect Book, Pl. 27, fig. 16.

Only the thirteen-year race is known from Mississippi, and the following notes on distribution within the state have been taken from Bulletin No. 71, U. S. Dept. of Agriculture, Bureau of Entomology, 1907, C. L. Marlatt:

Brood XIX (1907–1920); fairly well distributed over the state.

Brood XXI (1909–1922); recorded from the eastern part of the state only.

Brood XXII (1910–1923); southwestern Mississippi.

Brood XXIII (1911–1924); distributed over the state but particularly in the northern half.

Brood XXIV (1912–1925); recorded from Franklin and Holmes counties.

Brood XXVI (1914–1927); "an outpost in Mississippi is also

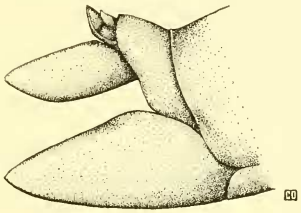
reported by Mr. George H. Kent, Suffolk, Franklin county, who reports their appearance throughout the southwestern portion of the county in the month of May."

Brood XXVII (1915–1928); "a small brood was reported for Franklin County, Miss., as appearing about May 20, 1902, by Mr. George H. Kent, of Suffolk."

Variety *cassinii* (Fisher) is smaller than the typical form, with the ventral surface of the abdomen generally much darker in color.

Okanagana viridis new species. Pl. VIII, figs. 4 and 5.

Type male, O'Reilly, Mississippi, July 10, 1917 (Ernest Waldauer)). Davis collection.



Okanagana viridis

A green insect, almost unicolorous, with the membranes or flaps at the base of the wings yellowish. The venation of the wings is green, except the costal margin, which is yellowish to the end of the radial cell. The basal cell is nearly clear. There is also a slight indication of yellow about the head, the tympana and the uncus. The front of the head is rounded and not prominent, the eyes are not prominent, and the uncus is straight, as shown in the figure. Beneath the insect is green about the head and fore legs, and yellowish green centrally to the end of the valve. The sides are green. The colors are the same in both the type and allotype. The notch in the last ventral segment of the abdomen of the female is simple, that is not doubly notched as in some species of *Okanagana*.

MEASUREMENTS IN MILLIMETERS.

	Male Type.	Female Allotype.
Length of body	25	22
Width of head across eyes	7.5	7.6
Expanse of fore wings	64	64
Greatest width of fore wing	10	10
Greatest width of operculum	2	
Length of valve	4.5	

Allotype female of same locality and date. Collection Mississippi Agricultural and Mechanical College.

In coloring this is a remarkable species and reminds one of the green phases of *Melampsalta calliope* to be found in Florida and elsewhere. Mr. Waldauer writes as follows of the capture of the insects: "At the time, July 10, 1917, I was working a crew of day hands in a piece of new ground corn, about one mile northwest of the Yazoo and Mississippi Valley railroad station at O'Reilly, Mississippi. One member of my crew was attracted by the singing of one of these insects and knowing that I was making a collection called my attention to the same. Upon investigation I found one of these cicadas on the under side of a blade of corn. This was evidently the male. Near this place in the same field, a few minutes later I found the other."

Melampsalta calliope (Walker).

Cicada parvula Say.

Figured in Howard's Insect Book, Pl. 28, fig. 8.

Thirty-one specimens have been examined, the dates of capture ranging from May 14, 1915, at Fontainbleau (J. Chaffin), to August 5, 1916, Hattiesburg (T. R. Hearon). The other localities are: Houlka, Verona, Egypt, Stonewall, Laurel, Columbia, Lucedale, Anner, Caesar, Ocean Springs, Kiln, Long Beach, Nugent and Pascagoula.

This is the smallest cicada occurring in the state, and is rather plentiful, as indicated by the above records. The species has a wide distribution and shows considerable variation. The females are generally a little larger than the males and with broader heads. There are both green and brown individuals. *Cicada calliope* Walker was described from North Carolina; *Cicada parvula* Say was described from Missouri, probably that part of it now included in eastern Kansas.

EXPLANATION OF PLATES.

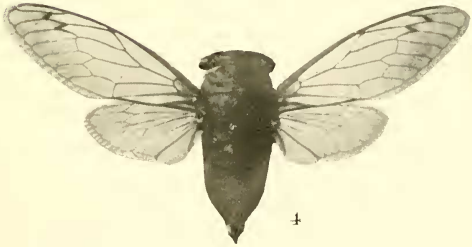
Plate VII.

Fig. 1. *Tibicen linnei* (Smith & Grossbeck).
Fig. 2. *Tibicen canicularis* (Harris).
Fig. 3. *Tibicen davisi* (Smith & Grossbeck).
Fig. 4. *Tibicen davisi* var. *harnedi* Davis. Type.

1

2

3



4

Cicada.